

CLAIMS

1. Optical assembly to be mounted on a microscope for measuring periodic movements of a microstructure, comprising:
a lower field lens (1) and an upper field lens (2),
an imaging lens system (4) arranged between the two field lenses (1, 2) in a beam path (3) thereof,
a beam splitter (5) arranged between the two field lenses (1, 2) for coupling light pulses of a stroboscope lamp (6) into the beam path (3),
the optical assembly in the region of the lower field lens (1) is adapted to be mounted on a camera mount of the microscope,
wherein the field lens (1, 2) and the imaging lens system (4) are dimensioned and arranged so that the first object image (7) at the camera mount of the microscope is imaged from below the lower field lens (1) to above the upper field lens (2) onto a second object image (8),
and the optical assembly in the region of the upper field lens (2) is configured for mounting a camera (12) or the like to the camera mount of the microscope.

2. Optical assembly according to Claim 1, wherein the field lens (1, 2) and the imaging lens system (4) are dimensioned and arranged so that individual rays of the beam from each image point of the first object image (7) emerge from the second object image (8) imaged above the upper field lens (2) at the same angles as from the first object image (7).

3. Optical assembly according to Claim 1, wherein the beam splitter (5) is dimensioned and arranged so that the light pulses of the stroboscope lamp (6) are coupled in the incident beam path of the microscope according to the rules of Köhler illumination.

4. Optical assembly according to Claim 1, wherein the stroboscope lamp (6) is part of the optical assembly.

5. Optical assembly according to Claim 4, wherein the stroboscope lamp (6) is an LED with an aperture angle θ and with a phosphor surface having a diameter d , which satisfies the relation: $d \cdot \theta < 0.5$, wherein d is in mm and θ is in rad.

6. Optical assembly according to Claim 5, wherein the LED has an optical output of more than 10 mW.

7. Optical assembly according to Claim 1, wherein the imaging lens system (4) is configured for aberration-free imaging.

8. Optical assembly according to Claim 1, wherein the field lenses (1, 2) of the imaging lens system (4) are dimensioned and arranged so that the first object image (7) is imaged on the second object image (8) without vignetting.

9. Modular system for measuring periodic movements of a microstructure, comprising:

a microscope, which is provided with a standardized camera mount,

a stroboscope lamp (6),

an optical assembly according to Claim 1,

a scanning vibrometer (13) mounted on the camera mount of the microscope or on the optical assembly,

and with an electronic camera (12) mounted on the camera mount of the microscope, on the optical assembly, or on the scanning vibrometer (13).